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COMMISSION OF CONSERVATION  
CANADA

Committee on Public Health

= General publication

The Epidemics  
of  
Typhoid Fever  
in the  
City of Ottawa

6-17

By

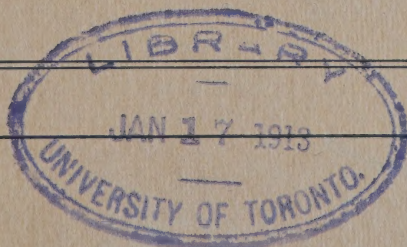
Charles N. B. Camac, B.A., M.D.

*Columbia University*

*College of Physicians and Surgeons, New York City*

*Some Facts regarding their Dangers to the Com-  
munity at Large and a Plea for a Federal  
Department of Health with Control over  
Local Sanitation, Water Supply  
and Drainage Systems*

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TO FIELD MARSHAL HIS ROYAL HIGHNESS PRINCE ARTHUR  
WILLIAM PATRICK ALBERT, DUKE OF CONNAUGHT AND OF  
STRATHEARN, K.G., K.T., K.P., &c., &c., GOVERNOR  
GENERAL OF CANADA

*May it Please Your Royal Highness:*

The undersigned has the honour to lay before Your  
Royal Highness a report on the Epidemics of Typhoid Fever  
in the City of Ottawa.

Respectfully submitted

CLIFFORD SIFTON,

*Chairman*

OTTAWA, October 31, 1912

OTTAWA, October 30, 1912

*Sir :*

I beg to transmit herewith a report on the recent epidemics of typhoid fever in the city of Ottawa, by Dr. Charles N. B. Camac, of Columbia University. Dr. Camac brings to this work a tried experience in fevers and in clinical medicine, acquired as Assistant Professor in Columbia University and as Attending Physician in the New York City Hospital, and also as a result of his previous university connections as First Assistant Resident Physician to the Johns Hopkins University Hospital, Baltimore, and Professor of Clinical Medicine in the Cornell University Medical College, New York City. Professor Camac treats of these local epidemics in their broader national aspects and his conclusions regarding the need for stricter governmental supervision of municipal sanitation, water supply and drainage systems merit careful consideration by Canadians.

Your obedient servant,

JAMES WHITE,

*Secretary*

HON. CLIFFORD SIFTON

*Chairman, Commission of Conservation  
Ottawa*



# The Epidemics of Typhoid Fever

in the

## City of Ottawa

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**I**N the city of Ottawa there have occurred two outbreaks of typhoid fever within eighteen months. This is so unusual an occurrence in our present knowledge of hygiene and sanitary engineering that it is no longer of local interest merely, but attracts the attention of physicians and sanitary engineers the world over. Besides sharing with the medical profession this general interest, my attention was specifically directed to the epidemics by being consulted by several citizens of Ottawa regarding the safety of residing in that city during the coming year.

Through the courtesy of some of the Government authorities I was enabled to acquaint myself with the conditions leading up to the outbreak. As the whole matter is under investigation, to be reported upon later, I will not attempt here to deal with these conditions in detail, but will state some general facts regarding the dangers, to the community at large, which such epidemics occasion.

Typhoid is a preventable disease—its cause and mode of transmission are among the best known to the science of medicine; where the measures for prevention have been intelligently and conscientiously carried out typhoid fever, in epidemic form, does not appear.

### Transmission of Typhoid by Individuals

The germ is carried and transmitted by individuals in the following ways:

- (1) By those who have sufficient resistance to entirely neutralize the poisons and who are therefore not ill. Such individuals (immunes), though they discharge the organism in virulent form, show no other sign of the disease.
- (2) By those who have only enough resistance to partially neutralize the organism, and who are therefore, partially disabled. Such individuals (walking cases) discharge the organism in virulent form and the sequels of the disease may develop in as severe a degree as in typical cases.
- (3) By those who have passed through a typical attack and have recovered. These and the walking cases may harbour the organisms for months or years. Such individuals (typhoid carriers) discharge the germ, in full virulence, from time to time.

### Forms of the Disease

The disease appears in two forms:

#### 1. THE SPORADIC FORM:

This is usually traceable to some source outside of the locality in which the disease appears. For example, people returning from travel or from a summer resort, may bring in their systems an infection which runs its course and is not found beyond that particular group of persons. The Fests in Germany and the fairs and exhibitions in other countries are frequently the means of receiving and transmitting such an infection. This is also true of soldiers returning from campaigns. It will probably be a long time, and then possibly only through vac-



cination, before such outbreaks can be prevented. In all outbreaks it is possible for carelessness on the part of those in attendance upon the sick to extend the infection to themselves and others. This occurs through every point of contact between the fecal and urinary discharges of the typhoid patient and the alimentary tract of the uninfected individual. Such transmission is the fault of the physicians, nurses and attendants and is exclusively chargeable to them. These outbreaks, claiming their complications, sequels and mortality with the same exactness as the largest ones, are none the less tragic, but public opinion is not, as a rule, aroused.

Of late years the medical profession, without the goad of public opinion, has diligently striven to prevent such, and has incorporated into every medical and nursing school the training which will enable physician and nurse to safeguard the community against such transmission.

## 2. EPIDEMIC FORM:

*Under this head comes the Ottawa visitation.* It is hardly necessary to mention the less common causes of such an epidemic or to describe its features. The two outbreaks through which Ottawa has passed were caused by the commonest and best understood of all the causes of disease—namely, the contamination of drinking water by sewage. In other words, that which is scrupulously avoided in the care of the typhoid case, was, by the contamination of the Ottawa water supply, brought about in the grossest possible way.

While nurses were disinfecting discharges and sterilizing the utensils of those known to have typhoid, thousands of other persons, harbouring the germ in one or the other of the ways referred to above, were transmitting organisms through the foul water directly into the alimentary tract of innocent victims.



Ottawa is outwardly a beautiful city. It is the seat of the government of Canada, a country rapidly striding into international prominence. Her people, by ever increasing railway and steamship systems, are travelling, not only through Canada, but also through the United States and other countries.

From the modes of harbouring the organisms given above, it will be seen that during and after such epidemics as Ottawa has had, every individual from the seat of outbreak may be a menace, not only to his own community and country, but to any which he may visit. The typhoid epidemic to-day is an unpardonable crime against the world. It is scientifically punishable under the sixth commandment. By scientifically is meant that science has proven that typhoid epidemics are preventable by well known and thoroughly tested methods, which, if not adopted, render the authorities guilty of murder. The command to adopt such measures should be coupled with the charge, "Thou shalt not kill."

#### Prevention of Typhoid

In no other disease has science so clearly and so simply pointed out the methods of prevention. The stage of experiment in this matter has long passed.

Smallpox, yellow fever, cholera and typhus, from being a constant menace to society have become, through the work of science and sanitary engineering, almost unknown.

Tuberculosis, in spite of the persistent ignorance of some communities, is, in its severer forms unknown, and from being looked upon as an inevitably hopeless disease is now among the almost certainly curable. Diphtheria and malaria also must be mentioned in this list of curable and preventable diseases. To acquire these results, the highest type of scientific acumen, the sacrifice of life, the expenditure of enormous sums of money, and legislation, municipal, national and international, have been necessary.

To prevent typhoid, on the other hand, two things only are necessary—two things long recognized as essential to the



health of any community—pure water and proper drainage. The official report shows that the Ottawa epidemics, claiming their hundred and fifty-six deaths, were due to the failure to supply these requirements. To this list of the dead must be added those who will suffer from the many sequels now known to be directly due to the typhoid organisms, some being incapacitated for years with consequent poverty and suffering, the full story of which will never be known.

To this also must be added that host of victims stricken down by the typhoid carriers and walking cases, emerging from such an epidemic. These latter can transport the germ in its full virulence to any part of the world, thus connecting the negligence or ignorance of the municipal authorities in one locality with the hideous tragedies of a typhoid outbreak in another, far removed from the original source of infection.

#### Necessity of Federal Regulation

It costs the Government of the United States \$18,000 to complete the education of an officer for the navy. After the most thorough and searching examination, the candidates are selected to serve in maintaining the nation and protecting commerce. The same is true to a large extent of the army. Why should an army and a navy be maintained against possible destruction to empire or commerce while a national menace to life is met by partially prepared or ignorant local authorities? Why should not the maintenance of a National Health Department, equipped with men prepared with the care given to the education of the navy or army officer be considered obligatory? No such national safeguard exists, except in quarantine stations. There is, as it were, a Foreign Office but no Home Office or Department of the Interior for health matters.

Our present system is analagous to despatching a body of city police to meet an invading army or to attack an enemy who had seized some important town. In a military sense the idea is ridiculous, yet this is exactly what is done in coping with a



national enemy like typhoid fever. At present, in Canada and the United States, it is not possible for an expert with the authority of the Federal Government to compel a small city whose water and drainage system may be a source of national danger, to correct this condition. That the Ottawa authorities did not realize the far-reaching power of their epidemics, is shown by the fact that they permitted their plan for the annual exhibition, held at Ottawa, to be carried out, drawing thousands to that city, *at a time when new cases of typhoid were still being reported.*

I am told that the experience through which Ottawa has just passed could be repeated at Montreal; that the relation of water supply to sewage is such that a contamination as it occurred at Ottawa might take place at any time at Montreal. If the National Government were responsible for the water supply and sewage, as it is for quarantine stations, coast defences, light houses and harbours, it would be possible to institute uniform measures approved by the highest authorities. Until some such plan is adopted, this question of vital importance will be at the mercy of political manipulation and the ignorance of half-trained officials.

As stated at the beginning of this article, these opinions are expressed with regard to typhoid fever in general. I do not wish to convey the impression, that what has been witnessed in the state of affairs prevalent at Ottawa is peculiar to that city; the menace lurks, under our present health regulations, in many large towns throughout the continent. The grave-yards of Philadelphia and Baltimore are filled with the silent victims of municipal ignorance or political corruption. What, I trust, has been shown is that a typhoid fever outbreak of the proportion of that in Ottawa is a subject for widespread concern. It calls for the most serious consideration of the present health regulations, which make possible so appalling a destruction of life and health in an otherwise fair city.

Is it possible to allow longer so subtle and hideous a national enemy to be met only by local health officers whose training

may be inferior and whose appointment may have been the price of some political favour? Why cannot our health officers, like our military and naval officers, be removed from petty political influences? Why should not this continent benefit in its maintenance of health by the highest scientific ability? Why should commerce receive more adequate protection than public health? Finally, Ottawa's epidemics, and all outbreaks of like proportion, must remain in their consequences a national and international menace *for years to come*.

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